SPECIAL PACKAGING INSTRUCTION

Form Approved OMB No. 0704-0188 XTB JS

1. PART OR DRAWING NO. (CAGE) NOMENCLATURE	2. CAGE	3. SPI NO.
28D3-0C-41-ETN (2A406) Engine Diesel	19207	AK14753775

4. NATIONAL STOCK NO.	5. DATE OF DRAWING	6. REVISION
2815 01 475 3775	August 7, 2003	

7. QUP	8. ICQ	9. UNIT PACK WT.	10. UNIT PACK CU (CU. FT.)	11. UNIT PACK SIZE (INCHES)
001	NONE	2200.0	96.000	

	18. STEPS	19. REQD	20. DESCRIPTION
12. MILITARY PRESERVATION	1-A		General Requirements
MIL-STD-2073-1D, METHOD 53	2-B		Preservation: See Note B in Block 17 Below
13. CLEANING	3-D		Desiccant: MIL-D-3464
MIL-STD-2073-1D, METHOD 1	4-E		Container: ASTM D6256/D6256M, TYPE I, CLASS 2, STYLE A,
14. DRYING			TREATMENT A
MIL-STD-2073-1D			
15. PACKING			
a. LEVEL A			
MIL-STD-2073-1D and Note F			
b. LEVEL B			
Not Applicable			
16. MARKING			
MIL-STD-129 and Note G			

17. NOTES/DRAWING

A General Packaging Requirement - Quantity per unit pack shall be one each.

1. In addition to the item preservation required below engine must be protected from the rough handling, stacking, vibration and other hazards associated with shipping, storage and transportation.

2. Protection from physical damage and mechanical malfunction is required for the method of preservation in addition to the specific environment protection provided. All cushioning and dunnage materials shall be as clean and dry as practicable to minimize item susceptibility to corrosion and contaminants. All knobs, sharp projections, greased slides, bearings and other protrusions shall be suitably wrapped or otherwise protected to prevent damage to either the item or the preservation.

3. Only non-corrosive wrapping, cushioning and dunnage shall be used in contact with bare metal and critical item surfaces. Non-corrosive is defined by the test requirements of FED-STD-101, Test Method 3005.

4. Disassembly shall be confined to the minimum necessary to safeguard parts vulnerable to damage or that would otherwise increase cube if not removed. Disassembly shall also be confined to those parts that can be removed and reinstalled without special tools. Removed bolts, nuts, screws, washers, keys, and other fasteners shall be reinstalled in mating parts and secured to prevent loss. When not practical to reinstall hardware, items shall be preserved, packaged, and secured to the engine. Under no circumstances should the ducting be disassembled or alterations made to the engine, which would allow dust or dirt to enter the engine.

5. This engine is subject to the requirements of CFR Title 49 and shall be certified by the contractor or his authorized representative and marked indicating that the engine does not contain fuel and that the fuel lines have been drained, sufciently cleaned of residue,and purged of vapors to remove any potential hazard and the engine, when held in any orientation, will not release any liquid fuel. The contractor is responsible for any additional processing of the engine or changes in the preservation necessary to insure the engine is purged of vapors prior to sealing in the watervaporproof barrier.

B. Engine Preservation.

1. Crankcase. At beginning of engine preservation, engine crankcase shall be filled to operating level with preservative lubricating oil conforming to grade 10, 30, or 15-40 of MIL-PRF-21260.Fuel system. Fuel System. A portable container or a supply line shall be positioned to provide preservative oil to the engine. The engine fuel supply line shall be disconnected at the most convenient point nearest the fuel tank, and a flexible line containing the preservative oil supply connected to the disconnected fuel supply line leading to the engine. Drain diesel fuel from the fuel filters and fill with preservative oil. The engine shall be started and operated at fast idle until running smoothly, but for not more than 4 minutes. Accelerate to 1 /2 throttle and run for 3 minutes and then shutdown by conventional methods.

SPECIAL PACKAGING INSTRUCTION (Continuation Sheet)

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17. NOTES/DRAWINGS *CONTINUED*

2. Combustion Chamber Processing. The engine shall be cooled to100 degrees F. Cooling will be accomplished by induced air currents, circulation of engine coolant (for liquid-cooled engines), or by waiting the period of time required to arrive at the 100 degrees F. When ambient temperature exceeds 100 degrees F, the engine should be cooled to a temperature equivalent to the ambient. After engine has been cooled to the required temperature, processing through combustion chamber will be started and completed with minimum delay. Overall elapsed time for complete engine processing should not exceed 24 hours. After the engine has been cooled, an air restrictor plate shall be installed at the nearest and most convenient place to cut off the air supply to the engine. With the fuel system filled with preservative oil, MIL-PRF-21260, Grade PEI 0, the engine will be cranked for 10 seconds. Remove the preservative oil supply line and reconnect the fuel supply lines and open the fuel shut off valves. Drain filters, remove filter elements and replace with new elements and gaskets. Level A vehicle processing requirements for each vehicle model contain unique engine/vehicle processing requirements and should be reviewed prior to processing engines for outside storage.

CAUTION

Special precautions will be taken to ensure that the amount of oil dawn into the engine while completing step 2 above will not result in a hydostatic lock. Prior to processing additional engines, the first engine will be processed as specified above and allowed to stand 12 hours. The engine will then be manually rotated, or rotated by the starter if manual turning is not possible, to ensure that the amount of oil drawn into combustion chambers allows free rotation of the engine.

3. Drain crankcase. Install new filters. Reinstall drain plug.
4. Upon completion of engine preservation, all openings into the engine such as crankcase breathers, oil filler caps, valve cover breather holes, oil level dipstick/tube, and openings into accessories, shall be sealed with plastic caps or plugs conforming to AIA/NAS 840 and/or 847, or- with tape conforming to SAE-AMS-T-22085.
5. A Warning tag shall be prepared and attached to the engine with the deprocessing instructions in commercial format detailing how to deprocess the engine. Guidance is contained on DD Form 2258 or DA Form 1397.
6. Engines, internal combustion are a hazard for transport in accordance with CFR Title 49. The contractor is responsible for insuring that all engines preserved are purged of all flammable vapors to remove any potential hazard. Alternate procedures may be used by the contractor for engine preservation, The procedure proposed by contractor shall not cause excessive preservative lubricating oil to be left in combustion chambers and manifolds that could result in hydrostatic lockup of engine. The contractor shall furnish an engine for examination and test of his proposed procedure prior to production preservation. The proposed procedure shall be subject to prior approval of the contracting officer. Procedures previously approved for long term storage in excess of 60 months by the Government may be used with CO approval.

C. Quality Assurance Provisions:
   1, Inspect the preservation and unit pack in accordance with MIL-STD-2073-1D
   2. Quality Conformance shall be in accordance with MIL-STD-2073-1D
   3. First Article test and Inspection of the engine in the container is required in accordance with ASTM D4169, Distribution cycle 18, Assurance level I, acceptance criterion 3. Only mechanical handling testing is required.

D. Desiccant: Follow the guidance in MIL-STD-2073-1D for determining the quantity required in the barrier bag.

E. Container. Construct container using lag bolts or other reusable hardware in the container construction. Base shall be full panel plywood with plywood panels on ends, sides and top. Skids will be beveled with rubbing strips. Corner straps are required. Blocking, bracing, and cushioning shall be designed to protect engine and insure successful rough handling testing without any damage to the engine, the watervaporproof barrier, or to the container. An inspection port is required to coincide with the location of the humidity indicator to view the humidity indicator installed in the bag. Indicator shall comply with SAE AS26860, Type 11.

F. The Unit container will serve as the shipping container.

G. Special Marking: SEE ASTM D6256/D6256M for special container markings. All containers will additionally have the engine serial number marked on the container in accordance with MIL-STD-129. Any required exercising/represervation of the engines during the storage period of 10 years shall be documented in the form of a shelf life(extendible) and the instructions provided to the government contracting officer.